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POLYMER PRODUCTS DEPARTMENT
EXPERIMENTAL STATION

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Pral File
I.C.

PERSONAL AND CONFIDENTIAL

July 16, 1981

DR. D. O. INSLEE
SPRUANCE TEXTILE FIBERS
RICHMOND, VA.

ANALYSIS OF BLOOD SAMPLES FOR PERFLUOROOCTANOATE
(Job No. 811-601; PRAL Nos. 81-2244-2278; Notebook Nos. E22514,E26238)

As requested in your letter of 5/8/81 to L. J. Papa, the 35 blood samples submitted then have been analyzed for perfluorooctanoate (C_8). Results and sample identification are given in the attached table.

As noted there, the analyses were done using a gas chromatographic method specific for C_8 (Lab Method Number ES-567) but results have been reported as ppm F for comparison with total organic fluorine analyses. Precision is $\pm$ 10% relative standard deviation over most of the concentration range, somewhat less at the lowest values. The lower limit for quantitation is 0.007 ppm F (0.01 ppm perfluorooctanoic acid), with a detection limit of $\sim$ 0.004 ppm which can be distinguished from the reagent background but not well quantitated.

Please contact me (772-4440) or L. J. Papa (772-2745) if you have any questions regarding the analyses. General questions on blood sampling can be directed to J. W. Raines or L. F. Percival.

S. S. Stafford

Attachment
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Key Words:
Perfluorooctanoic Acid
Perfluorooctanoate
Blood Analysis
GC

TABLE I

CONCENTRATION OF PERFLUOROOCTANOATE IN BLOOD (a)

Sample				GC Analysis (b)	
PRAL No.	Date Sampled	P.R.No.	Name	Date Analyzed	[C_8], µg F/g blood
81-2244	5/6/81	898	[redacted]	6/11/81	0.036
81-2245	4/27/81	1084		6/11/81	0.022
81-2246	4/27/81	992		6/11/81	0.022
81-2247	5/6/81	357		6/12/81	0.030
81-2248	4/28/81	983		6/12/81	0.027
81-2249	5/11/81	923		6/12/81	0.033
81-2250	4/28/81	1605		6/12/81	0.041
81-2251	5/5/81	1544		6/15/81	0.012
81-2252	4/28/81	1212		6/15/81	0.045
81-2253	4/27/81	946		6/15/81	0.086
81-2254	4/28/81	1538		6/15/81	0.056
81-2255	5/7/81	3060		6/15/81	n.d.
81-2256	4/27/81	2093		6/15/81	0.018
81-2257	5/6/81	2457		6/15/81	<.007
81-2258	5/7/81	1908		6/15/81	0.009
81-2259	5/7/81	2542		6/15/81	n.d.
81-2260	5/14/81	2151		6/16/81	0.016
81-2261	5/14/81	2205		6/16/81	0.011
81-2262	5/15/81	651		6/16/81	n.d.
81-2263	5/7/81	3184		6/18/81	n.d.
81-2264	5/18/81	1190		6/17/81	0.082
81-2265	5/15/81	sal.		6/11/81	n.d.
81-2266	5/15/81	1949		6/11/81	n.d.
81-2267	5/14/81	1856		6/11/81	n.d.
81-2268	5/6/81	2771		6/12/81	n.d.
81-2269	5/14/81	sal	[redacted]	6/12/81	n.d.
81-2270	5/7/81	1466		6/12/81	n.d.
81-2271	5/7/81	sal		6/12/81	n.d.
81-2272	5/7/81	sal		6/15/81	n.d.
81-2273	5/14/81	pensioned		6/15/81	n.d.
81-2274	5/7/81	sal		6/15/81	n.d.

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TABLE I

CONCENTRATION OF PERFLUOROOCTANOATE IN BLOOD (a)

Sample				GC Analysis	(b)
PRAL No.	Date Sampled	P.R.No.	Name	Date Analyzed	[C_8], µg F/g blood
81-2275	5/7/81	pensioned	[redacted]	6/15/81	n.d.
81-2276	5/7/81	sal		6/16/81 & 6/18/81	0.027
81-2277	5/7/81	2898		6/16/81 & 6/18/81	0.010
81-2278	5/8/81	pensioned		6/17/81	n.d.

(a) Analysis as described in Lab Method ES-567 ("Determination of Perfluorooctanoic Acid in Blood, Gas Chromatographic Method", S. Stafford, 4/3/81), using the packed column GC analysis with perfluoro-n-octanoic acid as calibration standard.

(b) Although the analysis is specifically for perfluorooctanoate (acid or salts), concentrations are given in ppm fluorine for comparison with the results of total organic fluorine analyses. (ppm F = 0.688 x ppm perfluorooctanoic acid) Estimated uncertainty is ± 10% relative standard deviation. The lower limit for quantitation is 0.007 µgF/g. The detection limit is ~ 0.004 µgF/g, but concentrations in that range cannot be well quantitated and are reported as < 0.007. None detected (n.d.) is reported for samples with [C_8] $\lesssim$ 0.004 ppm, which cannot be distinguished from reagent background.